

## FLUID PRESSURE REGULATED WAFER POLISHING HEAD

### Abstract

A wafer polishing head utilizes a wafer backing member having a wafer facing  
5 pocket which is sealed against the wafer and is pressurized with air or other fluid to  
provide a uniform force distribution pattern across the width of the wafer inside an edge  
seal feature at the perimeter of the wafer to urge (or press) the wafer uniformly toward a  
polishing pad. Wafer polishing is carried out uniformly without variations in the amount  
of wafer material across the usable area of the wafer. A frictional force between the seal  
10 feature of the backing member and the surface of the wafer transfers rotational movement  
of the head to the wafer during polishing. A pressure controlled bellows supports and  
presses the wafer backing member toward the polishing pad and accommodates any  
dimensional variation between the polishing head and the polishing pad as the polishing  
head is moved relative to the polishing pad. An integral, but independently retractable  
15 and extendable retaining ring assembly is provided around the wafer backing member and  
wafer to uniformly and independently control the pressure of a wafer perimeter retaining  
ring on the polishing ad of a wafer polishing bed.

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